

# TECHNICAL INFORMATION AND SERVICE DATA

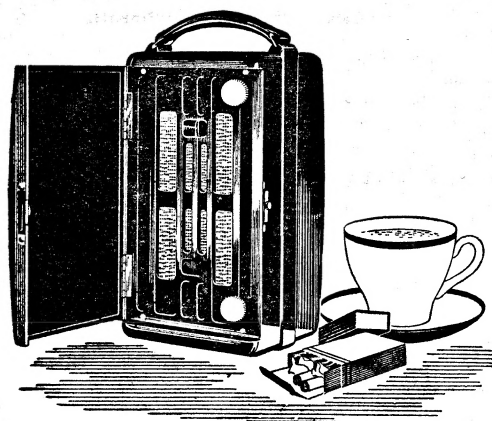
## PERSONAL PORTABLE



### Model 450-P

**FOUR VALVE, BROADCAST  
BATTERY OPERATED SUPERHETERODYNE**

**ISSUED BY  
AMALGAMATED WIRELESS (A/SIA.) LTD.**



## ELECTRICAL SPECIFICATIONS.

FREQUENCY RANGE .....	1600-540 Kc/s (187.5-555M)
INTERMEDIATE FREQUENCY .....	455 Kc/s
BATTERY COMPLEMENT .....	"A" Batteries: 2-1.5 volt torch cells "B" Battery: 1-67½ volt Minimax
BATTERY CONSUMPTION .....	"A" Battery: 250 mA "B" Battery: 8.0 mA

### VALVE COMPLEMENT:

- (1) 1R5 Converter
- (2) 1T4 I.F. Amplifier
- (3) 1S5 Det., A.V.C., A.F.  
Amplifier
- (4) 3S4 Output

### LOUDSPEAKER

(Permanent Magnet):  
3½ inch—Code No. BCI.  
Transformer XJ1  
V.C. Impedance 3 ohms at  
400 C.P.S.  
**Undistorted Power Output:**  
70 milliwatts  
**Controls:**  
Tuning—top  
Volume—bottom.

## MECHANICAL SPECIFICATIONS.

	Height	Width	Depth
Cabinet Dimensions (inches)	8½	4½	4½
Carton Dimensions (inches).....	9½	5	5

Weight (Net lbs.) .....	5
Cabinet Finish .....	Moulded Plastic

## GENERAL DESCRIPTION.

The model 450-P is a Personal Portable receiver housed in a most attractive moulded cabinet. Cabinet colours are: Ivory, Walnut, Burgundy and Black. Combinations of the above colours are also available—such as Black and Ivory, etc.

Features of design include: Tropic proof construction, automatic volume control, magnetite cores in I.F. transformers and oscillator coil, automatic ON/OFF switch operated by the front lid, built-in loop aerial.

# ALIGNMENT PROCEDURE.

## Manufacturers' Setting of Adjustments.

The receiver is tested by the manufacturers with precision instruments, and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws have been broken.

It is especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

For all alignment operations, except aerial stage, connect the "low" side of the signal generator to the receiver

chassis and keep the generator output as low as possible to avoid A.V.C. action. Also, keep the volume control in the maximum clockwise position.

## Testing Instruments.

- (1) A.W.A. Junior Signal Generator, type 2R3911, or
- (2) A.W.A. Modulated Oscillator, type J6726.

If the modulated oscillator is used, connect an 0.25 megohm non-inductive resistor across the output terminals.

- (3) A.W.A. Output Meter, type 2M8832.

## ALIGNMENT TABLE.

Order	Connect "high" side of generator to:	Tune Generator to:	Tune Receiver Dial to:	Adjust for maximum peak output:
1	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L7 (core)
2	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L6 (core)
3	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L5 (core)
4	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L4 (core)
Repeat above adjustments until the maximum output is obtained.				
5	Inductively coupled to loop *	600 Kc/s	600 Kc/s	L.F. Osc. Core Adj. (L2)†
6	Inductively coupled to loop *	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C6)
7	Inductively coupled to loop *	1500 Kc/s	1500 Kc/s	H.F. Aerial Adj. (C2)
Repeat 5, 6 and 7 until the maximum output is obtained.				

†Rock the tuning control back and forth through the signal.

\*A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument and placed co-axial with the loop and distant not less than 6 inches from it.

## CHASSIS REMOVAL.

Remove the back lid and withdraw the batteries from their compartments.

Open the front lid and pull the knobs straight off their spindles. Remove the four mounting screws from the front panel and withdraw the chassis from the cabinet.

Care should be taken when removing the chassis that the plunger operating the ON/OFF switch does not fall out and become lost.

When service has been completed make sure that the plunger is in its correct position before replacing the chassis.

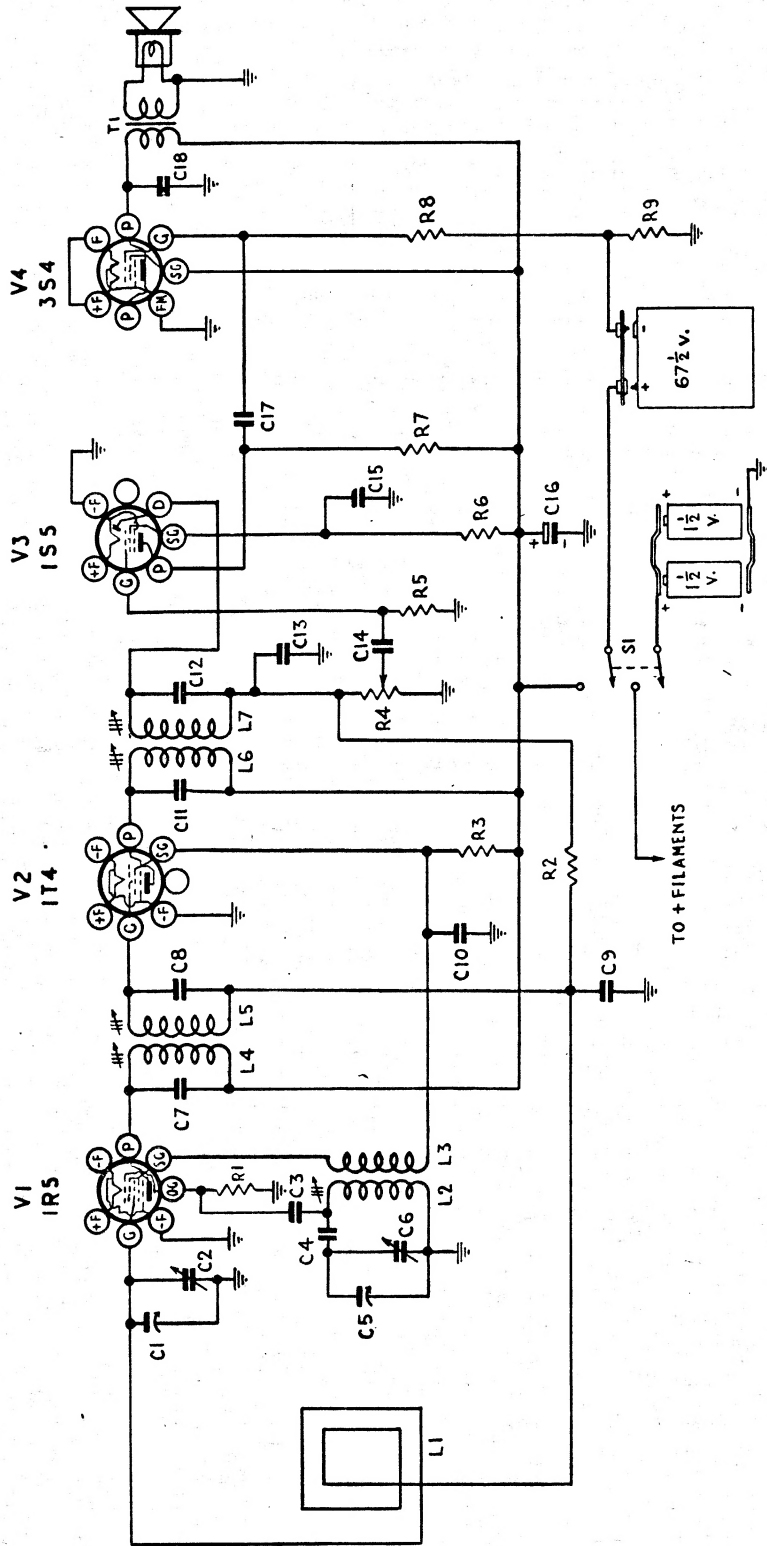
## SOCKET VOLTAGES

Valve	Bias Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
1R5 Converter .....	0	30	58	0.5	1.4
1T4 I.F. Amp. ....	0	30	58	1.0	1.4
1S5 Det., A.V.C., A.F. Amp. ....	0	20*	25*	0.04	1.4
3S4 Output .....	-7.0	58	56	5.0	1.4

Total H.T. Current—8.0 mA D.C.

\*Calculated from measured current. An ordinary voltmeter will register a lower value.

Measured with no signal input.



Owing to an unavoidable shortage of 3S4 valves, a IS4 has been used in some receivers.

If it is necessary to replace the IS4 with a 3S4, the following must be done:

Disconnect the lead connecting pin 7 on the output valve socket to pin 7 on the IS5 socket and remove the insulating sleeve. Then, re-connect the lead from pin 7 to pin 1 on the output valve socket and thence to pin 7 on the IS5 socket.

A 3S4 valve may now be plugged in and the receiver operated as before.

## CIRCUIT CODE MODEL 450-P

Code No.	Description	Part No.	Code No.	Description	Part No.
<b>INDUCTORS.</b>					
L1	Tuned Loop 1600-540 Kc/s	R8	2.5 megohms 1/2 watt	C12	50 $\mu$ F mica
L2, L3	Oscillator coil 1600-540 Kc/s	R9	800 ohms 1/2 watt	C13	100 $\mu$ F mica
L4, L5	1st I.F. Transformer	<b>CAPACITORS.</b>			
L6, L7	2nd I.F. Transformer	C1	12-450 $\mu$ F tuning (ganged)	C14	0.0025 $\mu$ F 600 v. working
		C2	5-20 $\mu$ F trimmer (on gang)	C15	0.025 $\mu$ F 400 v. working
		C3	100 $\mu$ F mica	C16	20 $\mu$ F 200 P.V. electrolytic
		C4	490 $\mu$ F mica $\pm 2\frac{1}{2}\%$ padder	C17	0.0025 $\mu$ F 600 v. working
		C5	12-450 $\mu$ F tuning (ganged)	C18	0.01 $\mu$ F 600 v. working
		C6	5-20 $\mu$ F trimmer (on gang)	<b>TRANSFORMER.</b>	
		C7	50 $\mu$ F mica	T1	Loudspeaker transformer .....
		C8	50 $\mu$ F mica	<b>SWITCHES.</b>	
		C9	0.05 $\mu$ F 200 v. working	SI	Battery switch
		C10	0.025 $\mu$ F 400 v. working	<b>LOUDSPEAKER.</b>	
		C11	50 $\mu$ F mica	3 1/2 inch Permanent Magnet.....	
				BC1	

### D.C. RESISTANCE OF WINDINGS.

Winding	D.C. Resistance in ohms
Oscillator Coil	
Primary (L2)	2
Secondary (L3)	8
I.F. Transformer Windings	30
Loudspeaker Input Transformer (T1)	
XJ1 Primary	350
XJ1 Secondary	*

\*Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations, and it should not be assumed that a component is faulty if a slightly different reading is obtained.

## MECHANICAL REPLACEMENT PARTS.

Item	Part No.
Aerial assembly .....	21825
Bracket, volume control .....	22694
Cabinet	
Back moulding .....	21986
Body assembly .....	21982
Lid assembly .....	21981
Dial assembly .....	21784

Item	Part No.
Hinge assembly .....	21993
Insulator .....	21773
Knob .....	21828
Panel, front .....	21766
Socket, valve .....	19965
Strap, clamp .....	21843
Strip, tag. 1 way .....	21761
1 way .....	7628